

The Influence of Self-Talk on Learning Achievement and Self Confidence

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Abstract

The purpose of this research was to examine the influence of self-talk on badminton skill, specifically in clear lob learning achievement and self confidence. It was carried out on 64 beginning badminton athletes aged between 10-12 years (mean=10.8), consisting of 32 boys and 32 girls from badminton schools in Bandung, Indonesia. The subjects were divided into three experimental groups and one control group by random assignment. Before getting the treatment, all participants did a badminton clear lob test, then all experimental groups were given the following self-talk treatment (instructional, motivational, and combination of them), and badminton clear lob instructions. The result of data analysis showed that (1) self-talk has a significant influence on badminton clear lob learning achievement and self-confidence, (2) combination of instructional self talk and motivational self talk significantly enhances badminton clear lob learning achievement and self-confidence than instructions and motivational self-talk only, (3) instructional self-talk significantly enhance badminton clear lob learning achievement than motivational self talk, and (4) motivational self-talk significantly enhance self-confidence than instructional self-talk. In general, all experimental groups showed significant enhancement of badminton clear lob learning achievement and self-confidence than control group.

Keywords: self-talk, learning achievement, confidence, badminton

1. Introduction

Self-talk are statements directed to the self, is multidimensional and can be in an open/close or positive/negative form, which functions as an instruction and/or motivation to the self. Stamou, Theodorakis, Kokaridas, Perkos, & Kessanopoulou (2007) states that self-talk is a cognitive technique that involves the activation of intellectual processes to change or influence existing thought patterns. Self talk can be in the form of internal dialogue of an individual to him/her self which is either done silently or openly (Theodorakis, Weinberg, Natsis, Douma & Kazakas 2000; Moran, 2004). Self-talk is an internal part of psychological skill training program. The use of self talk is usually combine with other psychological skills in an intervention training package (Hardy, 2006), and can be used by athletes to develop self confidence (Zinsser, Bunker & Williams, 2006; Hatzigeorgiadis, Zourbanos, Goltsios & Theodorakis, 2008; Hatzigeorgiadis, Zourbanos, Mpoumpaki & Theodorakis, 2009), increase motivation (Hardy, Gammage & Hall, 2001a; Hardy, Hall & Alexander, 2001b), increase performance (Perkos, Theodorakis & Chroni, 2002; Kolovelonis, Goudas & Dermitzaki, 2011), and increase ability to focus (Papaioannou, Ballon, Theodorakis & Auwelle, 2004). As a multi dimension construct, self talk is related to various dimensions such as valence, overtness, self-determination, motivational interpretation, frequency, and functions. The functional dimension of self talk is further divided into instructional (cognitive) and motivational functions (Hardy, 2006). Hardy, et al. (2001a) founded that there were two main functions of self-talk: cognitive and motivational. Cognitive self-talk is further categorized into specific and general function, while motivational self-talk is categorized into mastery, arousal, and drive functions. This is strengthened by researches conducted by Theodorakis, *et al.* (2000), Hatzigeorgiadis, Theodorakis and Zourbanos (2004), Dana, Shirazi, Jalili, and Zamanian (2011), and Kolovelonis, Goudas, and Dermitzaki (2011) in relation to various movement tasks. Instructional self talk refers to statements designed to enhance performance by stimulating desired actions through proper attentional focus to the technical aspects of movement, while motivational self-talk refers to facilitate performance through enhancing confidence, inspiring greater effort and energy expenditure, and creating a positive mood (Theodorakis et al., 2000; Weinberg & Gould, 2007; Kolovelonis et al., 2011).

Instructional self-talk is common in many research and has been proven to significantly increase performance, for example studies conducted on badminton service skill and soccer scoring accuracy (Theodorakis et al., 2000), basketball skills (Perkos et al., 2002), golf accuracy and consistency (Harvey, Van Raalte & Brewer 2002), and, forehand tennis groundstroke (Cutton & Landin, 2007). On the other hand, motivational self talk has significantly positive influence on motor task performance in dart throwing (Van Raalte, Brewer, Lewis, Linder, Wildman & Kozimor, 1995), enhance a knee extension (Theodorakis et al., 2000), water-polo (Hatzigeorgiadis et al., 2004), tennis forehand drive and self efficacy (Hatzigeorgiadis et al., 2008), self confidence, and decrease cognitive anxiety. The above studies showed that self talk can increase performance in various sports movement task, through various ages and competencies. However, results of some studies regarding effectiveness of both types of self talk is inconsistent since some studies proved that instructional self talk is more effective than motivational self talk and vice versa (Dana et al., 2011). For example, Theodorakis, *et al.* (2000) found that instructional self talk is more effective than motivational self talk in a soccer passing skill and badminton serving skill, but in a sit up task and a knee extension task both types of self talk has positive influence. The results proved that task-demand-oriented matching hypothesis (Hardy, Oliver & Tod, 2009), which states that instructional self talk is more beneficial to tasks requiring skill, timing or precision, whereas motivational self talk is more effective in tasks requiring strength and endurance. Other findings by Hatzigeorgiadis et al., (2004), proved that instructional and motivational self talk gives positive influence on precision task (throwing a ball at target), and motivational self talk is only effective in power task (throwing a ball for distance). Meanwhile, evidence on the relationship between self-talk and self confidence is relatively limited. However, early evidence regarding this relationship can be deduced from researches by Landin and Herbert (1999) on five female tennis players, Perkos et al., (2002) on four young basketball players, and, Johnson, Hrycaiko, Johnson and Halas (2004) on four female football players, proves that self talk intervention program can increase self confidence. Motivational self talk is found to help increase ability to execute tennis forehand drive, self confidence, and decrease anxiety (Hatzigeorgiadis et al., 2008), and, increase self efficacy and tennis forehand drive (Hatzigeorgiadis et al., 2009). Besides that, studies on the application of self talk are commonly done on elite athletes both novice and professional, and those on beginning athletes, is limited. Therefore, this research is conducted on beginning badminton athletes between the ages of 10-12 years to determine the effectiveness of self talk at a relatively young age. Parallel to the arguments above, the objective of this research is to determine the influence of self talk (instructional, motivational, combination self talk, and no self talk) on badminton clear lob learning achievement and self confidence among beginning badminton athletes aged between 10-12 years in Bandung, Jawa Barat, Indonesia. It is hypothesized that the athletes badminton clear lob learning achievement and self confidence using self-talk is significantly higher than those not using self talk (Hypothesis 1), combination self-talk have more positive effect on badminton clear lob learning achievement and self confidence (Hypothesis 2), instructional self-talk have more positive effect on badminton clear lob learning achievement (Hypothesis 3), motivational self-talk have more positive effect on self confidence (Hypothesis 4).

2. Methodology

This study was conducted at a badminton club in Bandung, Jawa Barat, Indonesia. Subjects for this study were 64 beginning athletes between the age of 10-12 years (mean = 10.8; sd = .584), comprising of 32 boys (mean = 10.9; sd = .632) and 32 girls (mean = 10.6; sd = .504) chosen using simple random selection, and is randomly matched according to ability (Millsap & Olivares, 2009) to three experimental groups and one control group.

Badminton clear lob test which includes objective test and accuracy-based test (Morrow, Jackson, Disch & Mood, 2005) to measure accuracy to a designated target was conducted. The clear lob test used was developed by Center for Badminton Development and Training for Children Bandung (1995/1996), and modified by Hidayat and Wirawan (2005). Samples did 12 strokes, 6 from each side of the court, to designated targets on the other side of the court. The total number of shuttlecocks that fall in the designated target is counted as the raw score. This test has a criterion validity of 0.74 and test-retest reliability 0.90.

The self confidence scale is adapted from the self confidence multidimensional model in athletics by Vealey and Chase (2008), consisting of cognitive efficiency, physical skill and training, and, resilience subscales. Based on a pilot test involving 278 respondents using factor analysis, 32 items were valid with a loading factor between 0.508 to 0.811, overall reliability of 0.867, cognitive efficiency subscale reliability of 0.722, physical skill and training subscale reliability of 0.590, and resilience subscale reliability of 0.670.

Self-talk manipulation check is conducted immediately after training to determine whether each athlete used the self talk technique which has been taught to them. Each athlete is asked the following questions:

- 1) Do you understand about using self talk in today's training?

- 2) Do you say anything to yourself during training?
- 3) If yes, what are the words that you say to yourself (should suit treatment given)
- 4) Which words did you most often use throughout today's training? List from most frequent to least used.
- 5) Does the words use help in learning the movement task?
- 6) If did not say anything to self, athlete is required to choose one of the following reasons (a) no reason, (b) training is boring (c) not able (d) not enough commitment (e) other reasons.

The research process begins with a socialization program for the athletes for two days which focuses on the theories and practices of self talk techniques, structure and integrating self talk in training sessions. The treatment was conducted for six weeks with three training sessions per week. Each training session lasts for 2 hours which is divided into three phases; warming up, training proper and cooling down. Instructional self-talk strategy used were: (1) related to basic performance learned (Landin, 1994), (2) complements sequence of movement (Landin, 1994) and elements in movement (Landin & Herbert, 1999), (3) positive instructional self-talk (Hardy et al., 2001), (4) short, simple two syllable phrases (Landin 1994; Hardy, et al. 2001), (5) addresses singular first person (Landin, 1994; Hardy et al., 2001), (6) as often as possible especially before executing the movement (Landin, 1994; Johnson et al., 2004), (7) training session ends with manipulation check. As for motivational self-talk, the strategies used were: (1) related to ability and motivation (Hardy et al., 2001a), (2) positive motivational self talk (Hardy, et al. 2001b), (3) short, simple two syllable phrases (Landin, 1994; Hardy et al., 2001b), (4) addresses singular first person (Landin, 1994; Hardy et al., 2001b) (6) as often as possible especially before executing the movement (Landin, 1994; Johnson, et al. 2004), (7) training session ends with manipulation check. Coaches also were asked to remind the athletes to use the self-talk technique that has been taught to them. Group 1 used instructional self-talk, group 2 used motivational self-talk, group 3 used combinations self talk, and group 4 did not use any self talk strategies. Data were then analysed using MANOVA.

3. Results and Discussions

Table 1. Result of descriptive statistic

	Group	Mean	Std. Deviation	N
Clear lob	EG1 Instructional self talk	27.25	1.125	16
	EG2 Motivational self talk	21.75	1.732	16
	EG3 combinational self-talk	28.31	1.352	16
	Total	25.77	3.224	48
Self confidence	EG1 Instructional self talk	70.31	2.774	16
	EG2 Motivational self talk	78.00	3.933	16
	EG3 combinational self-talk	84.13	3.243	16
	Total	77.48	6.585	48

Table 2. Result of multivariate significance test

	Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Group	Pillai's Trace	1.573	82.975	4.000	90.000	.000	.787
	Wilks' Lambda	.043	83.509 ^b	4.000	88.000	.000	.791
	Hotelling's Trace	7.813	83.989	4.000	86.000	.000	.796
	Roy's Largest Root	4.942	111.204 ^c	2.000	45.000	.000	.832

Results of Hotelling's Trace found that $F=83.989$, $p<0.05$. This shows that self talk has a significant influence on learning achievement of badminton clear lob skill and self-confidence. The variability of clear lob learning achievement and self-confidence is explained by self talk is 79.6% as shown by the value of partial eta squared which is 0.796.

Table 3. Result of univariate significance tests of between-subjects effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Group	Clear lob	397.042	2	198.521	97.70	.000	.813
	Self-confidence	1532.792	2	766.396	68.267	.000	.752
Error	Clear lob	91.437	45	2.032			
	Self-confidence	505.187	45	11.226			

Table 3 show the results of the data analysis conducted which is as follows: (1) self talk has significant influence on learning achievement of badminton clear lob skill where $F(2,45) = 97.700$, $p < 0.05$, and variability of 81.3%, and, (2) self talk has a significant influence on self confidence where $F(2,45) = 68.267$, $p < 0.05$, and variability of 75.2%.

Pairwise comparison on learning achievement of badminton clear lob skill shows that: (1) instructional self talk (mean = 27.250) gives significantly higher influence than motivational self-talk (mean = 21.750) on learning achievement of badminton clear lob skill; (2) combination self-talk (mean = 28.312) gives significantly higher influence than instructional self-talk (mean = 27.250) on learning achievement of badminton clear lob skill; (3) combination self-talk (mean = 28.312) gives significantly higher influence than motivational self talk (mean = 21.750) on learning achievement of badminton clear lob skill. Pairwise comparison test on self confidence gives the following results: (1) motivational self-talk (mean = 78.000) gives significantly higher influence than instructional self talk (mean = 70.313) on self confidence; (2) combination self-talk (mean = 84.125) gives significantly higher influence than motivational self talk (mean = 78.000) on self confidence; (3) combination self-talk (mean = 84.125) gives significantly higher influence than instructional self-talk (mean = 70.313) on self confidence.

Results of one way ANOVA for learning achievement in badminton clear lob skill ($n = 64$; $m = 23.81$; $sd = 4.496$) found that $F(3,60) = 161.478$, $p < 0.05$. This means that there is a significant difference in learning achievement of badminton clear lob skill between experimental and control groups. This also holds true for self confidence ($n = 64$; $m = 74.11$; $sd = 8.283$) where $F(3,60) = 121.902$, $p < 0.05$. Further tests to compare between experimental and control groups using Tukey test is shown in Table 4.

Table 4. Result of experiment-control group comparison on clear lob learning achievement and self confidence

Num	Comparison group	p_Value	α	Note
Clear lob learning achievement variable				
1	G1 instructional self talk with G4 no self talk	.000	.05	Significant
2	G2 motivational self talk with G4 no self talk	.000	.05	Significant
3	G3 mix self talk with G4 no self talk	.000	.05	Significant
Self confidence variable				
1	G1 instructional self talk with G4 no self talk	.000	.05	Significant
2	G2 motivational self talk with G4 no self talk	.000	.05	Significant
3	G3 mix self talk with G4 no self talk	.000	.05	Significant

Results of the Tukey post hoc test shows that all experimental group has significant higher and better influence than the control group on learning achievement of badminton clear lob skill and self confidence.

Pearson correlation analysis that was conducted showed that there is a correlation ($r=0.621$, $p<0.05$) between learning achievement in badminton clear lob skill ($n = 64$; $m = 24.22$; $sd = 4.620$) and self confidence ($n = 64$; $m = 74.11$; $sd = 8.283$). Furthermore, there is a positive correlation ($r=0.588$, $p<0.05$) between learning achievement of badminton clear lob skill ($n = 32$; $m = 24.34$; $sd = 4.823$) with self confidence ($n = 32$; $m = 74.13$; $sd = 8.586$) among boys beginning athletes. There is also positive correlations ($r=0.659$, $p<0.05$) between learning achievement of badminton clear lob skill ($n = 32$; $m = 24.09$; $sd = 4.482$) with self confidence ($n = 32$; $m = 74.09$; $sd = 8.106$) among girls beginning athletes.

Independent samples t test for learning achievement of badminton clear lob skill between boys beginning athletes ($n = 32$; $m = 24.34$; $sd = 4.823$) and girls beginning athletes ($n = 32$; $m = 24.09$; $sd = 4.482$) is not significant ($t = 0.215$, $p > 0.05$, showing that there is no difference in learning achievement between boys and girls beginning athletes. This also holds true for self confidence between boys beginning athletes ($n = 32$; $m = 74.13$; $sd = 8.586$) with girls beginning athletes ($n = 32$; $m = 74.09$; $sd = 8.106$) where $t = 0.015$, $p > 0.05$, meaning there is no difference in self confidence between boys and girls beginning athletes.

From the manipulation check that was conducted, it is found that 90% of the athletes understand the use of self talk and 87% uses self talk either instructional self talk or motivational self talk in every training sessions. There were twelve instructional self talk that is being used frequently. Besides that, it is also found that 81.3 % instructional self talk helps athletes to learn the skill and 78.6% motivational self-talk helps athletes to be more relax and increase their confidence in performing the skill.

4. Discussions

The main purpose of this study is to determine the differences in the influence of instructional, motivational, and combination self talk on learning achievement of badminton clear lob skill and self confidence among beginning athletes between the ages of 10-12 years. Overall results showed that self talk is an effective psychological skill training intervention technique in increasing learning achievement in badminton clear lob skill and self confidence. It is proven that the athletes' learning achievement in badminton clear lob skill and self confidence using self-talk is significantly higher than athletes whom did not use self talk. This supports the earlier researches in various sports settings (Hatzigeorgiadis et al., 2008; Hatzigeorgiadis et al., 2009) which states self talk can increase sport performance and sport mental skill (self confidence), and when compared with the control group, it is proven that learning achievement in badminton clear lob skill and self confidence in all experimental groups is significantly higher. This study also found that combinational self-talk have more positive effect on learning achievement of badminton clear lob skill and self confidence compared to instructional self talk or motivational self talk. This shows that the two main types of self talk that is instructional and motivational self talk, can be used independently or as a combination to increase learning achievement in psychomotor skills and self confidence. Instructional self talk refers to statements designed to enhance performance by stimulating desired actions through proper attentional focus on the technical aspects of the skill, while motivational self-talk refers to facilitating performance through enhancing confidence, inspiring greater effort and energy expenditure, and creating a positive mood (Theodorakis et al., 2000; Hardy et al., 2001; Weinberg & Gould, 2007; Kolovelonis et al., 2011). Hardy, et al. (2009) states that there are four mechanism that can be use to help explain the relationship between self talk and performance, which is cognitive, motivational, behavioral, and affectual. This four mechanisms moderates the relationship between self talk and sports performance since it can increase attention, concentration, self confidence, motivation, technique, affect, and decreases anxiety.

The third hypothesis that states that instructional self-talk have more positive effect on learning achievement of badminton clear lob skill than motivational self-talk parallels the findings of earlier research (Zigler, 1987; Theodorakis et al., 2000; Perkos et al., 2002; Harvey et al., 2002; Cutton & Landin, 2007; Kolovelonis, Goudas & Dermitzaki, 2011). This is in line with the functions of instructional self talk which can be used for skill development, skill execution, performance improvement, and strategy (Hardy et al., 2001). In skill development function, instructional self talk is used to help learn new movement and improved techniques. Meanwhile, skill execution function is used for reminding athletes on key movements. This finding partially supports the task-demand oriented matching hypothesis (Theodorakis et al., 2000; Hardy et al., 2009). Therefore, instructional self talk is more beneficial for tasks requiring skill, timing or precision, whereas motivational self-talk is more effective for task requiring strength and endurance (Hardy et al., 2009; Kolovelonis et al., 2011).

In this study, learning achievement in badminton clear lob skill includes tasks that require precision and accuracy. The fourth hypothesis that states that motivational self-talk have more positive effect on self confidence compared to instructional self talk suits the motivational function from self talk, as reported by Hardy, et al (2001a) that athletes used motivational self-talk for three main reasons which is mastery, arousal, and drive. Besides that, Hatzigeorgiadis, et al. (2008) states that motivational dimensions refers to functions such as psyching-up, increasing self-confidence, and regulating anxiety, whereas the cognitive dimension refers to functions such as the execution of skills and development of strategies. Similar concept as explained by Goudas, Hatzidimiriou and Kikidi (2006) said motivational self talk can be used to regulate effort, increase self confidence dan concentration on the task at hand. The conceptual framework that can be used to explained the relationship between motivational self talk and increase in self confidence can be seen from the self efficacy theory developed by Bandura (1997). Self efficacy is an important factor in self confidence and is positively

correlated with athletic performance (Moritz, Feltz, Fahrback & Mack, 2003). According to Bandura, verbal persuasion is one of the four sources of self efficacy which is positively correlated with self talk, therefore, positive verbal persuasion through self talk will increase self efficacy, efforts and persistence, thus increases performance.

The next analysis test the correlation between changes in learning achievement of badminton clear lob skill and self confidence. It is found that there is a positive correlation between learning achievement of badminton clear lob skill and self confidence, for overall and also between gender. The findings of this analysis is consistent with previous findings thus supports the hypothesis that self confidence and athletic performance is positively correlated. This is strengthen by a meta analysis done by Craft, Magyar, Becker and Feltz (2003) which found an effect of 0.36, and another meta analysis by Woodman and Hardy (2003) with an effect of 0.24. The positive correlation between learning achievement of badminton clear lob skill with self confidence can be explained through the win-win concept. As is commonly known, performance shows competency, level of ability and quality of action. If performance is compatible with the objective of movement, thus the experience will be positive and athlete will received incentives as stated. Competency, level of ability, performance quality, experience, social support and incentives are sources that influence motivation and self confidence (Vealey, Hayashi, Holman & Giacobbi, 1998; Vallerand, 2007). Therefore, learning achievement in badminton clear lob skill can influence self confidence, and vice versa.

Analysis also showed that there is no significant difference in learning achievement of badminton clear lob skill between female and male beginning athletes. This findings is different from other study before this, for example Berukoff & Hill (2010) found that swimming performance of male undergraduates is higher than female undergraduates, so does a study by Hidayat and Sukadiyanto (2011) on 432 athletes between the age of 11-13 years, found that sports performance of male athletes is higher than female athletes. Meanwhile, results that showed there is no significant difference in level of self-confidence between male and female beginning athletes is not consistent with earlier researches. For example, Krane and William (1994) and, Marten, Burton, Vealey, Bump, and Smith (1990) found that self-confidence of male athletes is higher than female athletes.

5. Conclusion

The results of this study strengthens the evidence on the effectiveness of self-talk in sports setting, especially among beginning athletes between the ages of 10 – 12 years who is involved in badminton. Athletes that uses self talk shows significantly better improvement as shown in the increase in learning achievement of badminton clear lob skill and self confidence as compared with athletes that did not use self talk. Combination self talk has the highest influence on learning achievement as compared to instructional self talk and motivational self-talk, while instructional self talk significantly influence learning achievement of badminton clear lob skill compared to motivational self talk, and, on the other hand, motivational self-talk significantly influenced self confidence than instructional self talk. It also found that there is a correlation between learning achievement of badminton clear lob skill and self confidence. Therefore, in practice, teachers and coaches should teach their athletes how to use self talk in order to help increase self confidence and movement performance. In order to achieve optimal success, teachers and coaches, should choose and select the most suitable self talk strategy by taking into consideration the following: (1) must be related to type of performance (Landin, 1994), ability and motivation (Hardy, Gammage & Hall, 2001), (2) suits the sequence of movement (Landin, 1994) and elements of movement pattern (Landin & Herbert, 1999), (3) positive instructional self-talk (Hardy et al., 2001), (4) use simple, short, two syllable phares (Landin, 1994; Hardy et al., 2001a), (5) addresses self in the first person (Landin, 1994; Hardy et al., 2001a), (6) as often as possible in every training session (Landin, 1994; Johnson et al., 2004), (7) do a manipulation check after every training session. The limitation of this study is related to the research design which is post test-only control group design with more than one experimental group. Future research should first determine the subjects' ability before conducting the experiment.

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